RIGIDFORM™ MLF WPC 8.0mm INSTALLATION GUIDE

All instructions and recommendations in this guide are based on the most recent information and installation techniques available. Please follow this guide to ensure a trouble free and warranty supported installation.

Always check millikenfloors.com for latest installation, warranty, and maintenance guides. It is the responsibility of the installer to ensure that the most current documents are used during installation.

Installation contractor is responsible for reasonable inspection of the products prior to installation and for maintenance of dye lot integrity during installation. Milliken will not be responsible for visible defects after product has been installed.

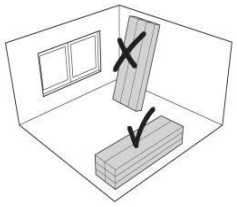
Contact Milliken Technical support if there are any specific concerns or questions prior to installation.

Highlights for the Rigidform™ MLF WPC Resilient Product

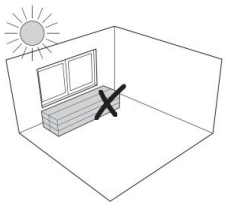
1. To prevent problems and general movement of product, areas to receive flooring shall be free of all contaminants and permanently dry, clean, smooth, level and structurally sound.
2. Roughness or unevenness of the subfloor may telegraph through the RigidForm™ MLF WPC 8.0 flooring over time, resulting in an unsightly surface and possibly causing excessive wear on high spots. The subfloor must be smooth, level, and structurally sound to prevent undesirable vertical or lateral movement of the resilient flooring. **The surface of the subfloor shall be flat and smooth to <3/16-inch in 10-feet or <1/8-inch in 6 feet in all directions (2 x US quarters should not slide underneath 6' straight edge).**
    a Cracks, depressions, or other irregularities should be leveled using a high moisture resistant, non-shrinking, Portland cement-based, patching compound.
    b Uneven and high areas should be mechanically ground to levelness and smoothness.
3. The subfloor should not slope more than 1” (25mm) per 6 ft (20m) in any direction.
4. For Commercial, Hospitality and Multi-family applications the moisture level must not exceed 90% RH and pH 9 in accordance with ASTM F2170. For subfloors with RH >90%, moisture mitigation is required. 6.0mil PE sheeting is required on concrete substrates. Milliken does not warrant nor is it responsible for damage to floor covering from moisture-related issues.
5. Residential installations on grade require 6mil poly-film placed between resilient flooring and slab. Milliken does not warrant nor is responsible for damage to floor covering from moisture-related issues.
6. Soft underlayment substrates can compromise the product's locking ability as well as diminish its indentation resistance. Additional soft underlayment's are not to be used.
7. Under normal temperature and humidity conditions Milliken RigidForm MLF WPC 8.0mm does not require acclimation, however it is still the best practice and an industry standard to acclimate all resilient flooring before installation. Both room and surface temperature within the space where the product will be installed must be maintained consistently between 60° to 80°F and the rooms’ relative humidity should be between 35 - 65% RH before, during and after installation. If cartons of flooring were exposed to extreme temperatures (under 60°F or over 85°F) for more than 2 hours within the 12 hours prior to installation, then acclimation at temperatures between 60°-80°F and relative humidity between 35-65% must occur for at least 12 hours before the installation. Acclimation must occur in the unopened package before you start the installation. This acclimation time will give the product the time needed to return to its original size and shape necessary for a successful installation.
8. Installation methods: Floating (on, above, or below grade); Glue Down installation is not permitted.

9. For wet areas and other locations where excessive top-down moisture may be present: Damage caused by conditions like mold, mildew, excessive moisture, hydrostatic pressure, floods, and standing water is not warranted by Milliken.
10. Required perimeter expansion gap spacing for Floating installation is a 1/2-inch perimeter gap at all vertical surfaces like walls, columns, fixtures, etc. These gaps will be covered with trim moldings after flooring is installed.
11. After installation, flooring should not be exposed to temperatures less than 60°F (15°C) or greater than 85°F (30°C).

Product Handling and Site Conditions



1. **Never** install RigidForm™ MLF WPC flooring products outdoors.
2. Check batch and product details and quantity are correct and match purchase order.
3. Inspect your shipment of RigidForm™ MLF WPC flooring to ensure that all cartons are of the same lot/manufacturing run.
4. Store cartons of tile/plank stacked one on top of the other. Do not store on end or sides or allow cartons to bend during storage or transportation.
5. Under normal temperature and humidity conditions Milliken RigidForm MLF WPC 8.0mm does not require acclimation, however it is still the best practice and an industry standard to acclimate all resilient flooring before installation. Both room and surface temperature within the space where the product will be installed must be maintained consistently between 60° to 80°F and the rooms' relative humidity should be between 35 - 65% RH before, during and after installation. If cartons of flooring were exposed to extreme temperatures (under 60°F or over 100°F) for more than 2 hours, then acclimation at temperatures between 60-80°F and relative humidity between 35-65% must occur for at least 12 hours before the installation. Acclimation must occur in the unopened package before you start the installation. This acclimation time will give the product the time needed to return to its original size and shape necessary for a successful installation.
6. RigidForm™ MLF WPC flooring should be protected from direct sunlight and not exposed to intense direct sunlight for extended periods of time. Milliken recommends suitable UV window coverings be in use in areas of large amounts of direct sunlight exposure. Unprotected window exposure can allow heat generation / thermal expansion which can create buckling problems.



7. To prevent damage to the newly installed flooring, the installation of flooring products should be installed after all other trades have completed their work. To further prevent damage after install until space is occupied, use of a reinforced fiber-based temporary floor protector product is strongly recommended.
8. To minimize shade variation during installation of RigidForm™ MLF WPC flooring, mix and install planks from several different cartons. Do not mix different batches.
9. Install flooring perpendicular to direct light sources, including large windows, etc. Use of suitable window coverings during the times of most direct sunlight is recommended.

APPROVED SUBSTRATES

The surface of the subfloor shall be flat and smooth to <3/16-inch in 10-feet or <1/8-inch in 6 feet in all directions (2 x US quarters should not slide underneath 6' straight edge). Use mechanical grinding/sanding and/or suitable moisture resistant Portland cement-based patching and leveling compounds to meet specifications. For more detailed instructions for substrate preparation, see subsequent section, "Substrate Preparation".

- To prevent problems and general movement of product, areas to receive flooring shall be permanently dry, clean, smooth, level and structurally sound. They shall be free of all contaminants, including but not limited to dust, solvents, paint, wax, oil, grease, residual adhesive, adhesive removers, curing, sealing, hardening, or parting compounds, alkaline salts, excessive carbonation or laitance, mold, mildew; any foreign material that might prevent the free movement of the floating floor or negatively impact it.

- Above-grade, on-grade, or below-grade concrete without hydrostatic pressure, excess moisture, or alkalinity
- Above-grade or on-grade lightweight concrete without hydrostatic pressure, excess moisture, or alkalinity. The concrete must be fully cured, dry, and free from curing compounds, sealers, etc.
- Above-grade or on-grade Gypsum concrete without hydrostatic pressure, excess moisture, or alkalinity. The concrete must be fully cured, dry, and free from curing compounds, the surface must be sealed with the gypsum manufacturer's recommended sealer. See details below. Below grade gypsum concrete is not allowed.
- Radiant heated floors where heat does not exceed 85°F (29°C). The heating systems components must have a minimum of ½-inch separation from the RigidForm™ MLF WPC 8.0mm flooring product.
- Properly prepared and well bonded existing resilient floor covering. Existing sheet vinyl floors must not be cushioned and not exceed more than one layer in thickness. Soft underlayment and soft substrates will compromise the product's locking ability as well as diminish its indentation resistance.
- Cement Terrazzo, ceramic tile, marble. Leveling the surface with moisture-resistant cementitious patching compound is likely required.
- Epoxy terrazzo
- Certain metal floors – Please contact Milliken Technical Support for assistance; 1-800-528-8453 – Select Option #2.
- APA registered underlayment, sanded face exterior grade with minimum rating of B-C plugged face.
- APA registered exterior grade plywood sanded and plugged face with ratings as follows: B-C, or better.
- Luan, OSB, particle or chip boards, CCA (pressure treated), oil treated or other coated plywood.
- Hardwood over a wood substrate is acceptable if all other substrate requirements are met.
- Raised access panel subfloors. Note: telegraphing of access panel seams may be visible and is not considered a product defect nor warranted by Milliken.

The following are **NOT** approved substrates for installing Milliken RigidForm™ MLF WPC 8.0mm flooring:

- Any type of carpet
- Heating systems that are not embedded into the subfloor.
- Floating floor of any type, including loose lay and perimeter affixed resilient or sheet vinyl.
- Rubber, cork, or asphalt tiles
- Textured or cushion backed resilient flooring.
- "Sleeper" floor systems and other uneven or unstable substrates
- Plywood floors that have been installed directly over a concrete slab.
- CDX or other plywood with knots or open defects
- Underlayment made of pine, cork, or other soft woods.
- Soft underlayment substrates can compromise the product's locking ability as well as diminish its indentation resistance. If additional layers of acoustic underlayment like rubber, polyurethane, cork, and plastic foam is desired, contact Milliken Technical Support for assistance; 1-800-528-8453 – Select Option #2.
- Masonite™ or other hardboard underlayment
- Hardwood flooring over concrete substrate.
- Uneven or unstable substrates
- Paint, wax, oil, grease, residual adhesive, mold, mildew, and other foreign materials

Unsuitable substrates should be covered with an approved 1/4-inch plywood underlayment or suitable Portland-based cement leveler/patching compound. Inherently unstable or compressible substrates must be removed, and that underlayment/patching applies only to structurally sound, non-compressible substrates after removal. Always follow the manufacturer's recommended practices when covering an existing substrate.

SUBSTRATE PREPARATION

All substrates must be properly prepared and tested according to the following guidelines:

1. Concrete Subfloors

a. Shall be in accordance with the most current version of ACI 302 and ASTM F710 – Standard Practice for Preparing Concrete to Receive Resilient Flooring, available from www.astm.org.
b. All patching and leveling is to be in accordance with the most current version of ASTM F2678 – Standard Practice for Preparing Underlayment's, Thick Poured Gypsum Concrete Underlayment's, Thick Poured Lightweight Cellular Concrete Underlayment's, and Concrete Subfloors with Underlayment Patching Compounds to receive Resilient Flooring.
c. Concrete slab construction shall be in accordance with industry standards for specification related to concrete mix design, curing methods and drying times to prevent moisture problems.
d. New concrete shall be properly cured and dried prior to the installation of floor covering. Curing agents, surface hardeners and other membranes or compounds shall be mechanically removed immediately after initial cure to allow the slab to properly dry before installation. Approximately 30 days per 1" of slab thickness.
e. All concrete substrates, regardless of grade or age of slab, must be properly tested using one of the methods outlined below for warranty to apply. Acceptable test method is the ASTM F 2170 In Situ Relative Humidity. Testing shall be conducted according to the instructions of the manufacturer of the testing equipment.
f. A 6 mil / 0.15mm poly film is required as a moisture barrier between the concrete subfloor and the flooring.

ASTM F 2170 In-Situ Relative Humidity Test

i. Testing should only be done when the test site is at the same temperature and humidity expected during normal use.
ii. A minimum of 3 test holes for the first 1,000ft^2 (100 M2) and one additional test hole for each 1,000ft^2 (100 M^2) thereafter.
iii. Test holes are to be drilled at a depth of 40% of slab thickness (one-side drying) or 20% of slab thickness (two sides drying).
iv. Test holes should be allowed to acclimate for 72 hours prior to insertion of the test probe. Reusable probes should equilibrate at least 1 hour prior to use in the next test area.
v. In-Situ Relative Humidity test results should be ≤ 90% RH.
vi. RH testing documentation must be saved for applicable warranty requirements.

Concrete Alkalinity / pH Test

i. Testing should only be done when the test site is at the same temperature and humidity expected during normal use; or at a temperature of 65° - 80°F (18° - 26° C) and 45% - 50% humidity for minimum 48 hours prior to testing.
ii. Using distilled water, place drops of water to form a small puddle approximately 1" in diameter.
iii. Wait 60 seconds, then dip a portion of the pH paper into the water.

Concrete Slab Preparation

i Concrete slabs shall be clean and smooth prior to installing floor coverings. Remove all sealers, curing agents and compounds, grease, oil, old adhesive residue, dirt, paint, etc. to ensure a clean bond surface for the adhesives.
ii Concrete floors shall be smooth and flat to prevent irregularities, roughness, or other defects from telegraphing through the new resilient flooring. **The surface of the subfloor shall be flat and smooth to <3/16-inch in 10-feet or <1/8-inch in 6 feet in all directions (2 x US quarters should not slide underneath a 6' straight edge). The subfloor should not slope more than 1-inch in 6 feet in any direction.**
iii Uneven areas should be mechanically ground to smoothness.
iv Cracks, depressions, or other similar irregularities should be leveled using a suitable high moisture resistant Portland cement-based patching compound. Follow the patch manufacturer's instructions regarding mixing and applications.
v Overly porous, dusty, flaky, or soft concrete surfaces are not suitable for resilient floor coverings. It may be necessary to mechanically remove the top layer concrete in such cases and/or these surfaces may need to be primed and covered with a high moisture resistant cement-based underlayment compound. Follow the patching or leveling compound manufacturer's instructions regarding preparation of the concrete surface, priming, mixing of the product, thickness of application and drying time for resilient floor covering installation.

vi Expansion joints, isolation joints, control joints or other moving joints in the concrete slab shall not be filled with patching compound or covered with resilient flooring.

vii A 6 mil / 0.15mm poly film is required as a moisture barrier between the concrete subfloor and the flooring.

2. Gypsum and Lightweight Cellular Concrete Substrates

Gypsum and lightweight concrete subfloors and substrates should be primed in accordance with the listed standard. Unprimed gypsum surfaces may have a dusty, very open, porous surface, which will lead to an adhesion bond failure if not properly sealed and treated. It is the responsibility of the installation contractor to obtain verification from the GC, architect, owner, or party responsible for the site that the gypsum was properly sealed with the gypsum manufacturer's recommended sealer. If this data is not available, conduct testing according to ASTM F2419.

a. Gypsum surfaces shall be in accordance with and properly prepared according to ASTM F2419 (Standard Practice for Installation of Thick Poured Gypsum Concrete Underlayments and Preparation of the Surface to Receive Resilient Flooring.)
b. All patching and levelling are to be in accordance with ASTM F2678 (latest version), Standard Practice for Preparing Panel Underlayment's, Thick Poured Gypsum Concrete Underlayment's, and Concrete Subfloors with Underlayment Patching Compound to Receive Resilient Flooring Compounds
c. Conduct a surface porosity test to ensure that the surface is properly sealed. If the water is quickly absorbed, stop the installation, and contact Milliken Technical Services.

3. Wood Subfloors

a. All wood subfloors must be structurally sound with no up-and-down movement. A combination of wood subfloor and panel underlayment construction shall be a minimum of 1" in total thickness. When excessive subfloor movement occurs with any floating floor (click system) there is a risk of locking mechanism failure.
b. **The surface of the subfloor shall be flat and smooth to <3/16-inch in 10-feet or <1/8-inch in 6 feet in all directions (2 x US quarters should not slide underneath a 6' straight edge).**
c. There shall be at least 18" of well-ventilated air space beneath all wood subfloors. Crawl spaces must be insulated and protected by a suitable vapor barrier of at least 6 mil black polyethylene film. Complete, 100% coverage of crawl space must be covered.
d. Do not install over sleeper construction subfloors or wood subfloors applied directly over concrete.
e. Install suitable ¼" underlayment when necessary to assure flat solid surface.
   i. ¼" APA underlayment-grade plywood or Lauan are most common types.
   ii. When Lauan Plywood is used as an underlayment, it should be Type 1 (Exterior).
   iii. BB grade Lauan plywood is the best, followed by CC and OVL (overlay grade) which is the minimum acceptable.
   iv. Please note there are many different qualities and species classified as Lauan that may introduce problems (indentation, loss of bond, discoloration, and delamination) when used as an underlayment.
   v. Underlayment must be installed per manufacturer's recommendation.

4. Existing Resilient Flooring

When installing Milliken RigidForm™ MLF WPC flooring over existing resilient floors, the existing flooring must be:

i. Single Layer only.
ii. Be firmly bonded to the substrate.
iii. Flat and smooth with no curling edges or loose seams
iv. Dry and free from excessive moisture. All concrete floors shall be tested for moisture regardless of age or grade level. Do not assume that an existing floor is free of moisture related issues. Conduct RH moisture testing as described above.
v. Must not be of a cushion back, floating, or perimeter bonded to subfloor.
vi. Existing sheet vinyl floors must not be cushioned and not exceed more than one layer in thickness. Soft underlayment and soft substrates will compromise the product's locking ability as well as diminish its indentation resistance.
vii. Embossed surfaces may require use of appropriate embossing leveler to not telegraph.

Milliken is not responsible for problems leading to or from indentations, telegraphing of old floor, or adhesion release of old floor after the Milliken Resilient Tile is installed.

5. Old Adhesives

a. Adhesive residue shall be properly removed prior to the installation of RigidForm™ MLF WPC flooring product. It is recommended that mechanical scraping or grinding be used as a primary means of removing old adhesive residue to a stain.
b. Residues include, but are not limited to carpet, vinyl, VCT, and or wood flooring adhesives.
c. Black cutback/asphalt adhesives should be tested for asbestos before removal. If asbestos-free, the surface should be scraped by hand to remove any loose patches, trowel ridges and puddles so that only a thin residue layer remains. This layer should be properly covered using a moisture-resistant Portland based patching compound.
d. If chemical/liquid adhesive removers are utilized, the manufacturer's recommended instructions for cleaning after use of the remover shall be followed fully. Milliken is not responsible for any adhesive failures, indentation, bubbling, or delamination of new flooring due to improper cleaning of residue left from liquid adhesive removers. If your slab has been chemically abated, contact Milliken Technical about options to use in these Chemical Abatement situations; 1-800-528-8453 – Select Option #2.

6. Radiant Heated Subfloors

a. The radiant coils must not be in direct contact with the RigidForm™ MLF WPC flooring. There must be ≥ 1/2-inch (13mm) separation between the planks/tiles and the heating coils.
    1. Electric heating mats that are not embedded into the subfloor are not recommended.
b. The temperature of the subfloor and Milliken flooring must not exceed 85°F (29°C) during operation. Use of an in-floor temperature sensor is required to avoid overheating.
c. Room and Floor Temperature Conditioning Requirements for Installation
    1. To begin, the heating system must be on for at least two weeks **PRIOR** to installation to reduce residual moisture in the subfloor.
    2. Then, 3 days prior to installation, lower the temperature to 65°F, allowing floor to equilibrate.
    3. Ensure the floor temperature of the radiant heat is no higher than 65°F (21°C) for 8 hours prior to installation, during the entire installation, and for 48 hours after the installation.
d. When ready to raise the radiant heat temperature for the first time after installation, limit the temperature increase to 5°F (2.5°C) every 6 hours until desired operating temperature is obtained. The final floor temperature must be less than 85°F (29°C). This will minimize thermal shock and potential failure of unwanted buckling and gapping of the planks/tiles.

7. Other Subfloors

1) Cement terrazzo and metal floors may be suitable for installation and need to be properly prepared for adhesion. Most will need to be prepared with a suitable, moisture-resistant, Portland-based cement patching compound, see patch compound manufacturer's recommendations for use and preparation of subfloor.
    a) A 6 mil / 0.15mm poly film is required as a moisture barrier between the subfloor and the flooring.
2) Ceramic, porcelain, marble, and granite tiles are suitable as substrates when the following conditions are met:
    i. Tiles must be properly bonded with intact grout joints and free of cracks.
    ii. Surface of tile and grout joints should be free from sealers, coatings, dirt, and contaminants.
    iii. Properly prepare the surface of tiles by grinding any high areas and using a suitable Portland based leveling compound and primer to fill in all low areas. Follow leveling compound manufacturer's recommendations for surface preparation and application of product.
    iv. A 6 mil / 0.15mm poly film is required as a moisture barrier between the subfloor and the flooring.

WARNING!

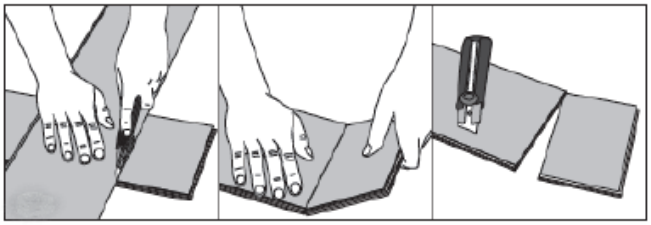
DO NOT SAND, BEAD BLAST, SHOT BLAST OR USE ANY OTHER MECHANICAL MEANS TO PULVERIZE EXISTING TILE FLOORING, BACKING, LINING FELT, ASPHALTIC "CUT-BACK" OR ANY OTHER ADHESIVES. **THESE** ***PRODUCTS MAY CONTAIN ASBESTOS FIBERS AND/OR***

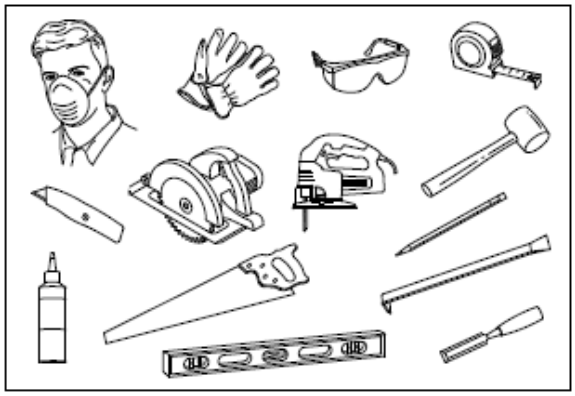
CRYSTALLINE SILICA. AVOID CREATING DUST. INHALATION OF SUCH DUST IS A CANCER AND RESPIRATORY TRACT HAZARD. SMOKING BY INDIVIDUALS EXPOSED TO* ASBESTOS *FIBERS GREATLY INCREASES THE RISK OF SERIOUS BODILY HARM. UNLESS POSITIVELY CERTAIN THAT THE PRODUCT IS A NON-ASBESTOS CONTAINING MATERIAL, YOU MUST PRESUME IT CONTAINS ASBESTOS. REGULATIONS MAY REQUIRE THAT THE MATERIAL BE TESTED TO DETERMINE ASBESTOS CONTENT.

Layout and Cutting

Milliken planks simulate wood or abstract designs and can be installed in the same pattern as a wood plank floor: Staggered Ashlar.

Standard flooring tools are useful for installation, including Circular saw (80T Non-Melt Plastic cutting saw blade), reciprocating jigsaw or oscillating multi tool with fine tooth blade work well for cutting planks. Top cutting with a utility knife (deep and several times along same axis) is an option.

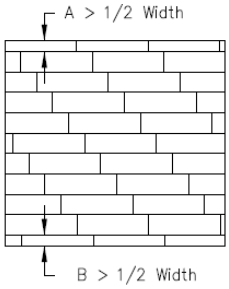




1. Determine plank orientation to customer preference.
   a Recommend running parallel with longest wall.

2. It is important to plan the layout of the plank format to prevent narrow pieces along all wall junctions.

3. Using calculated dimensions or dry layout, determine the starting and finishing wall plank widths. Such that both are greater than at least 1/2 plank width. Trim starting plank row according to determined measurements.



4. It is beneficial to snap a chalk line near the first row to assure a straight installation.

5. Be sure to allow for a (1/2" / 12.7mm) spacing along all walls when determining your starting plank width.

Installation

Floating Installation

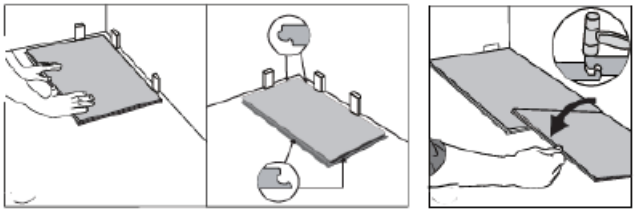
All RigidForm™ MLF WPC 8.0mm flooring is designed to be installed utilizing the floating method. Required perimeter expansion gap spacing for Floating installation is a 1/2-inch (12.7mm) perimeter gap at all vertical surfaces like walls, columns, fixtures, etc. Undercut all doorjambs. Do not fasten wall moldings and/or transition strips to the flooring. Built-in cabinets, kitchen cabinets, islands and similar heavy items must be installed first. Flooring is then installed leaving the required 1/2" (12.7mm) expansion gap. The gap will be covered by trim moldings affixed to the cabinetry.

WET AREAS

- **This product is not warranted for installation is wet areas with running water and areas with built in drains.**

General Procedures

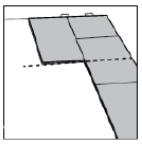
1. Remove baseboard, quarter-round moldings, wall base, appliances, and furniture from room.
2. Door trim must be undercut to allow flooring to move freely.
3. Sweep and vacuum work area to remove all dust and debris. Determine if the starter row will need to be cut from the Layout instructions in step #3.
4. If undulations in wall, scribe planks to match wall and cut with jig saw.
5. For Residential on-grade installations install 6 mil poly film. Poly film seams must be taped with a water-resistant tape.
6. To protect joints when installing, recommend creating 6” tapping blocks by cutting off ends of 1 plank.
7. Begin at the left-hand corner of the longest wall and proceed from the wall with the tongue sides facing walls and groove facing outwards (groove sides are marked with arrows on the back of each plank).



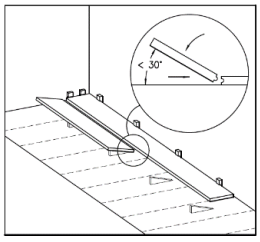
8. Install the second piece in the first row by aligning its right side over the left side groove of the first. Both planks must be perfectly aligned. Using a rubber mallet, gently tap down on the second plank to lock it into the groove of first plank, until both are the same height.
9. The mallet should strike directly above the locking system.

Fasten the piece together by gently tapping down along the seam to align the planks vertically. Use of a soft, white No. 2 rubber mallet and tapping block, if necessary, to vertically engage the joint.

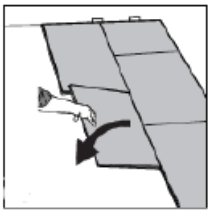
10. Continue in this manner for the rest of the first row. The last piece in the row should be cut to length while maintaining the 1/2" (12.7mm) expansion space along the perimeter of the room (recommend use of 1/2" spacers)
11. If desiring a uniform brick pattern installation, it is highly beneficial to strike a 90° chalk line to assure consistent alignment for every other row.



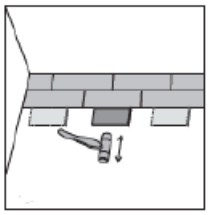
12. Cut a piece in half of the length to start the second row. Install the first piece in the second row by inserting the long side tongue into the groove of the piece in the first row at a low angle (30°) to the installed piece. Then firmly lower the plank while maintaining a slight pressure towards the installed piece. The pieces should fit snugly together and lay flat. **Ensure that expansion space is kept along this wall by using 1/2" spacers or blocks.**



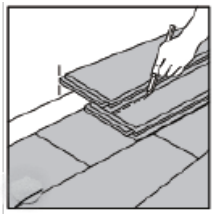
13. **The click product requires a "T - seam" (achieved via brick pattern installation" to ensure integrity of the click system and its ability to resist heavy foot traffic and rolling loads.**
    a **Brick pattern stagger** - minimum 12" with 24" plank, and minimum 8" with 49" plank.
14. To install the remaining planks in the second row, first align the long edge tongue into the groove of the previous row at a 30° angle. Slide the piece to the left aligning the left side over the right-side groove of the first plank. Make sure both planks are perfectly aligned. Gently tap down with the rubber mallet to lock it into the groove of the first plank until both are the same height. The mallet should strike directly above the locking mechanism.



15. Work across the length of the room installing pieces in the second row. It is critical to keep these first two rows straight and square, as they are the "foundation" for the rest of the installation. Check for squareness and straightness often while installing the floor.
16. After finishing installation of each row use a tapping block and rubber mallet to gently tap the planks into the click position of the previous row. This will make sure they are tightly engaged.



17. Use of several 1/2" (12.7mm) spacer blocks along the first wall will ensure the proper spacing is achieved and that floor does not 'walk' back towards the wall during installation.
18. If a random pattern is the desired appearance, alternate starting plank width for subsequent rows based upon desired pattern. For example, 1/4, 1/3, 1/2, random, etc. You want your cut pieces (next to wall) to be greater than 12" inches (30cm) depending on plank length. Any new joint should be at least 8 inches (20cm) from previous joints.
19. Continue installing flooring, being certain to maintain a random appearance (planks) or the pattern (tiles) and offset end seams by at least 8" and span joint greater than 24 Inches (at least 12 inches each side of joint). Maintain a 1/2"(12.7mm) expansion gap at all fixed vertical surfaces. Check to be certain all planks are fully engaged; if slight gapping is noticed or the pieces will not lay flat, simply disengage the long/top side joint and then carefully slide the short/end joint apart. **Do not pull up on this joint as it will damage the locking mechanism!** Reinstall the piece. If necessary, use tapping block and hammer to assure locking mechanism is engaged.
20. To install the last row, position a loose plank exactly on top of the last row laid. Place another board on top, with the tongue side touching the wall. Draw a line along the edge of the plank to mark the first plank. Cut along the edge of this plank to mark the first plank. Cut along this line to obtain the required width. Please note, the last row should be at least 2" wide and maintain the 1/2" (12.7mm) spacing next to the wall.



21. Being a floating flooring that can naturally expand and contract with exposed environmental conditions, the floating floor should not be locked down (pinched) by wall base board, portable walls, door thresholds, cabinets or any interior structures mounted on or directly secured to or through the RigidForm flooring system.
22. When connecting with thresholds and/or window mullion framing the 1/2" (12.7mm) expansion gap should be filled

with a flexible caulk. This is also applicable to 1/2" (12.7mm) expansion gaps not covered by molding.
   a Color Rite Inc offers 450 caulk colors.
   b https://colorriteinc.com/color-rite/

23. For matching trim materials please visit:
   a Products offered - https://www.versatrim.com/products.html
   b Online ordering - https://www.versatrim.com/how-to-order.html
24. When replacing molding or wall base, allow slight clearance between molding and planks. Do not nail through the flooring.
25. When transitioning to other flooring surfaces a transition molding is required to cover the exposed 1/2" (12.7mm) gap.
26. The RigidForm floating floor should not be installed over structural expansion joints or construction joints.

Floor surfaces exceed 4,300ft²/ 400m² and/or lengths exceeding 65 ft / 20m must use expansion moldings.

Installation of Bathrooms

- Rigidform MLF WPC can provide a top-down, water resistant floor when installed correctly. The installation process must ensure that the subfloor is properly prepared for the resilient product being installed. All 1/2" perimeter expansion gaps along wall baseboards, toilet and tub/shower and vertical abutment expansion gaps should be filled with a compressible Polyethylene rod covered with silicone for wet areas or flexible silicone caulk can be employed in smaller bathroom areas.
- Remove toilet; prepare sub-floor properly.
- Install flooring as discussed in installation procedures discussed above.
- Use flexible 100% silicone sealant in bathrooms around toilet flange, exposed sub-floor at flange, tub/shower, wall base of room, and any areas where water may reach subfloor; a recommended vendor for color-matched caulk for sealing gaps is Color-Rite Inc.: https://colorriteinc.com/color-rite/.
- Re-install toilet.

For locations where top-down moisture may be present: Damage, including mold and mildew, caused by standing water, floods, or excessive moisture is not warranted by Milliken.

After Installation

1. Be sure planks are set, flat, and have tight edges.
2. If the Milliken RigidForm MLF WPC 8.0mm flooring is not the last portion of the construction project, the floor must be protected from construction traffic and damage. Utilize a reinforced fiber protective board or a heavy kraft paper (min. 60 lbs.) and cover the floor.
3. Flooring should not be exposed to temperatures less than 60°F / 15°C or greater than 85°F / 30°C.

Initial Maintenance for owner

1. Thoroughly clean the floor using a neutral pH cleaner. If necessary, a slow (175rpm) buffer can be utilized with a white, non-abrasive pad to remove heavier deposits.
2. Thoroughly damp mop the floor and allow to dry. Do not pour water on the floor. The use of residential steam mops is permitted when used at the lowest power setting with a suitable soft pad. Do not let stand in one spot for more than 5 minutes.

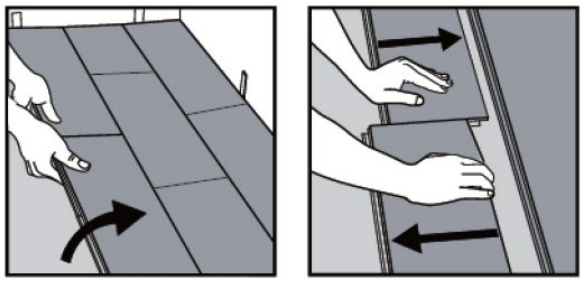
Daily and Weekly Maintenance for owner

1. Sweep, vacuum, or dust mop the floor as needed to remove dust loose dirt and grit. In high traffic areas this may be a daily or twice daily procedure. Use only vacuums that do not have bristle beater bars or metal heads.
2. Clean liquid spills immediately to prevent the possibility of stains, slips or falls.
3. Damp mop the floor as needed to remove dirt and stains. Use a neutral pH cleaner and a red pad if needed to remove ground in dirt. Soft bristle brushes can also be used on flooring with embossed surfaces.
4. Use mats at all entry areas to keep dirt, sand, and water from the floor. Clean the mats on a regular basis. If mats are placed directly on top of the floor, be sure the mats have a non-staining back. Rubber mats are also not recommended over Milliken MLF flooring products.
5. Furniture shall have protective glides of at least 1” in diameter to minimize the chance of indentations or scratching to the surface of the floor. Do not use narrow chair glides! Felt pads are also excellent protection for the floor for furniture that will be frequently moved directly across the floor.
6. Must use wide "W" type rubber caster wheels. Hard plastics can scratch the surface.
7. Areas with hard plastic caster chair wheels must have protective mats under the chairs.
8. Do not move heavy furniture, appliances, or fixtures directly across the floor. Use protective boards or appropriate furniture movers designed for use over hard surface flooring.

9. Protect the floor from direct sunlight by using appropriate window coverings.
10. Periodically clean caster wheels and check for wheels that may be broken or no longer rotating. Replace damaged wheels immediately.
11. Do not use metal or razor scrapers to remove dirt, residues, or other marks from flooring. This will damage the protective wear layer of the vinyl flooring.
12. Do not use abrasive cleaners, bleach, or wax to maintain the floor.

Disassembling Plank Flooring

1. Each row must be separated by delicately lifting the whole row at an angle. Planks within a row that have been tapped together must be laid flat on the ground and then slid apart. Should planks not easily separate, slightly lift one side up 5° when sliding apart. Please be careful not to lift more than 5° as this will break the locking mechanism.



Damaged Plank Replacement

1. Identify damaged plank to be removed.
2. Markup damaged plank to be removed (draw rectangle within body of plank).
   a. Mark 2 parallel lines along center of plank approximately 2” apart
   b. Ending approximately 2.5” from each end.
   c. Mark two 45-degree angles at each end from the plank corner to the rectangle corner.
3. Set circular saw blade to plank depth (use regular or compact circular saw with plastic non-melt 80T blade).
   a. Cut along markup lines, being careful not to cut into adjoining planks.
4. Fine cut in corners with razor blade or small cutting tool (oscillating multi tool).
   a. Cut along markup lines, being careful not to cut into adjoining planks.
5. Lift out center cut plank section using small pry bar.
   a. Be careful to not damage the tongue and groove sides as you lift out long side pieces.
6. Lift / slide out end sections and remaining side pieces.
   a. Be careful to not damage the tongue and groove sides.
7. Thoroughly clean/vacuum the area to remove any loose debris.
8. Prepare new plank by removing the following:
   a. Tongue profile on leading edge of long side.
      i. Set table saw depth to top of tongue.
   b. Tongue profile on short end – use sharp razor knife and straight edge.
   c. Bottom grove on short end – cut at an angle with sharp razor knife and straight edge.
   d. Be careful not to cut into the decorative surface.
9. Place wax paper under all edges to prevent adhesive bonding to the floor.
10. Dry fit plank by inserting long side tongue into existing groove.
11. Lift plank – place bead of glue (e.g., Loctite Power Grab – clear) around all edges, insert plank.
12. Remove excess glue with clean cloth and mild detergent.
13. Roll plank edges with hand roller.
14. Remove excess glue with clean cloth and mild detergent. Note, if allowed to dry on surface, the adhesive film is not removable.
15. Place weight on inserted plank edges for 1- 2 hour minimum.
16. Avoid traffic for 12 hrs.